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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,950	11/13/2006	Peter Grochal	116047-150597	7128
25943 7590 06/22/2010 Schwabe Williamson & Wyatt PACWEST CENTER, SUITE 1900 1211 SW FIFTH AVENUE PORTLAND, OR 97204				
EXAMINER LANGMAN, JONATHAN C				
ART UNIT 1784		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/599,950

**Applicant(s)**

GROCHAL, PETER

**Examiner**

JONATHAN C. LANGMAN

**Art Unit**

1784

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-48 is/are pending in the application.
- 4a) Of the above claim(s) 43-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-42 and 48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI.08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Interval Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 19, 2010 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 15-42 and 48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 15 sets forth that the binding agent includes silicone and/or silicate. On page 8 of the remarks submitted on May 19, 2010, applicant points to originally filed claim 4 for support of this limitation. However originally filed claim 4 refers to the binder in the alternative (i.e. "silicone or silicate"). The examiner can not find and the applicant

has not shown support for the combination of binder comprising both silicate and silicone.

Claims 16-42 and 48 are rejected for being dependent upon a base rejected claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15-20, 30-33, 36-42 and 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takahashi et al. (WO/2003/102091) wherein (US 2005/0277543) is used as the English translation.

Regarding claims 15-17, 19, 20 and 31-33 and 42 Takahashi teaches a self cleaning coating (abstract) that comprises photocatalytic oxide particles and silica particles dispersed in a hydrophobic resin emulsion and water ([0033]). The photocatalytic oxide particles and the silica particles are less than 0.1 microns ([0040]). The hydrophobic resin (instantly claimed binding agent) is a silicone emulsion ([0083] and [0085]) and is present in amounts of 5 - 98% by weight, or 10 - 98% by weight. Takahashi teaches the photocatalytic oxide is present in 1-20 percent by weight ([0047] and [0048]).

In example 22 and 23, Takahashi teaches a silicone emulsion in an amount of 10 weight percent of the coating material; at least one filler including colloidal silica in amounts of 2.5 percent by weight of the coating composition, having particle sizes 20-30nm (Table 11, [0296] and [0190]); and a photocatalytically active Titanium oxide photocatalytic agent in amounts of 10 percent by weight of the coating material. These percentages fall within the instantly claimed ranges. These percentages are based on 40% by weight solids content in the coating composition ([0291]) (i.e.  $40\% \times 25\%$  titanium oxide and silicone).

It is expected that since Takahashi teaches the same binding agent, a hydrophobic silicone resin, as instantly claimed and taught (see instant specification page 8, [0023]), that the hydrophobic resin is capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent, as presently claimed. Furthermore it is expected that the coating composition of Takahashi is capable of forming a microstructured, self cleaning surface that photocatalytically reduces by about 0.1 microns and by about 1 micron or more per year in response to external weathering, as well as the decomposition being equivalent to chalking level of 1 or less.

It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15

USPQ2d 1655, 1658 ( Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

A material and its properties are inseparable. Since Takahashi teaches the same materials and the same coating composition as instantly claimed, it is expected and inherent that the coating composition of Takahashi will possess the same properties as instantly claimed, i.e. chalking and photocatalytic reduction rates.

Regarding claim 17, since Takahashi teaches the same materials and same weight percents as instantly claimed, it is inherent that the binding agent of Takahashi is at least partially photocatalytically degradable (see *in re best* case law applied above).

Regarding claim 18, Takahashi teaches that the binding agent comprises a nanocomposite material including a hydrophobic resin, or a preliminary resin product ([0157]-[0158]).

Regarding claim 30, Takahashi teaches that anatase form titanium oxide is preferred ([0081]).

Regarding claims 36-38, Takahashi teaches that the silica is mono-modal particle size distribution silica with particle sizes between 20 and 30 nms ([0190]).

Regarding claim 39, the applicant is not claiming a specific amount of binder, and therefore any amount can be considered excess. Excess is a descriptive term that can be interpreted to mean different amounts from application to application. Since Takahashi teaches a binder, it is the Examiner position that this binder can be interpreted to be in excess to some degree.

Regarding claims 40 and 41, Takahashi teach adding a pigment (Table 11 and [0063]).

Regarding claim 48, the amounts of water taught by Takahashi fall outside the instantly claimed range. However, the applicant appears to be claiming a final coating film, and not an intermediate composition, in that the applicant claims final coating characteristics (i.e. chalking, and decomposition). Therefore little to no patentable weight, is given to the secondary constituents such as water, that are not present in the final coating. Therefore the teaching of Takahashi that comprise, photocatalytic oxides, silica, silicone binders filler, as well as pigments, and secondary fillers, is said to read on the instantly claimed final coating, where little to no weight is given to the intermediate film composition.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (wo/2003/102091) wherein (US 2005/0277543) is used as the English translation, as applied to claims 15-20 and 30-33, 36-42 and 48 above, in view of Chopin et al. (US 6,037,289).

Takahashi teaches a coating composition comprising photocatalytic particles of  $\text{TiO}_2$ . Takahashi is silent to adding an additive to the  $\text{TiO}_2$  particles.

Chopin et al. teach a coating comprising photocatalytic particles of Titania. Chopin goes on to teach that in order to amplify the photocatalytic effect one can add catalysts and additives to the  $\text{TiO}_2$  particles (col. 4, lines 29-52). Chopin teaches coating titanium dioxide particles with oxides of Fe, Cu, Ru, Ce, Mo, Bi, Ta, Nb, Co, Ni, W, Sn, Zr, Ca, and Zn, in amounts of 0.01-20% compared to the titanium dioxide particles.

It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to dope the titanium dioxide particles of Takahashi with the metal oxides in their respective amounts as taught by Chopin in order to increase the photocatalytic effect of the titanium dioxide particles. These obvious compositional ranges taught by Chopin overlap those compositional ranges set forth in instantly claims 21-29.

Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (WO/2003/102091) wherein (US 2005/0277543) is used as the English translation, as applied to claims 15-20 and 30-33, 36-42 and 48 above.

Takahashi teaches coating compositions as seen in Table 11, that comprise a filler of highly disperse colloidal silica (table 11, [0190]), as described above. Takahashi is silent to a specific embodiment that comprises sol-gel derived silica, as instantly claimed.



However, Takahashi teaches that chain like silica may be used ([0160], and also teaches that silica aerosol may be used as an alternative to colloidal silica as the filler ([0246]). It would have been obvious to use sol gel derived silica (aerosol silica) or chain like silica, as described by Takahashi, as an alternative to the colloidal silica of the coating compositions of table 11, as Takahashi discloses that these are known and viable alternatives to colloidal silica.

Claims 15-20, 30-42, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,337,129).

Regarding claims 15-18, 20, 30-33, and 36-38, Watanabe et al. teach a surface coating for coating facades and other building materials (col. 15, lines 41). The coating comprises a hydrophobic resin and a photocatalytic oxide (col. 11, lines 35-40). In addition the coating also comprises an inorganic oxide (col. 11, lines 54-60), wherein the inorganic oxide is preferably silica (col. 14, lines 4-12). The photocatalytic oxide comprises anatase titania (col. 12, lines 31-32 and col. 4, lines 46-47). Watanabe goes on to teach that the particle diameter of the photocatalytic oxide, and the inorganic oxide are both less than 0.1 microns (col. 14, lines 32-40).

Watanabe teach in preferred embodiments that the hydrophobic resin layer preferably comprises 1-80% by weight photocatalytic oxides, and further preferably comprises 5-55% by weight inorganic oxide particles (col. 14, lines 43-53). In view of the preferred embodiments of the above two components this leaves a remainder of

hydrophobic binder in amounts of up to 94% by weight. Watanabe further teaches that the amount of hydrophobic binder may be controlled as desired (col. 15, lines 1-10). It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the amount of binder to include those amounts instantly claimed (i.e. 10-30%) for the intended application, as well as to adjust the amounts of photocatalytic oxide, to include those amounts instantly claimed (i.e. 2-15%), since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It is expected that since Watanabe teaches the same binding agent, a hydrophobic resin, as instantly claimed and taught (see instant specification page 8, [0023]), that the hydrophobic resin is capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent, as presently claimed. Furthermore it is expected that the coating composition of Watanabe is capable of forming a microstructured, self cleaning surface that photocatalytically reduces by about 0.1 microns and by about 1 micron or more per year in response to external weathering, as well as the decomposition being equivalent to chalking level of 1 or less.

It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a *prima facie* case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 ( Fed. Cir. 1990). The ***prima facie*** case can be rebutted by

evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

A material and its properties are inseparable. Since Watanabe teaches the same materials and the same coating composition as instantly claimed, it is expected and inherent that the coating composition of Watanabe will possess the same properties as instantly claimed, i.e. chalking and photocatalytic reduction rates.

In regards to claim 19, the second composition of Watanabe is used to reject the instantly claimed rejection. Watanabe teaches a surface layer comprising a silicone resin, and a photocatalytically active agent with a particle size of less than 10 microns and an inorganic filler with a particle size of less than 10 microns (col. 14). In regards to claims 21-23, since Watanabe is silent to doping the photocatalytically active agent it is expected that the photocatalytically active agent comprises 100%  $\text{TiO}_2$ .

Regarding claims 34 and 35, Watanabe teaches that the silica can be provided as a sol (see at least the examples). It is expected that the gel will crosslink during the setting of the coating composition and therefore will form a sol gel material. Furthermore, silica as a material is taught by Watanabe, and is claimed by the applicant. The product by process steps of obtaining the silica sol, are not given patentable weight since they do not provide a patentable distinction of structural difference between the silica of Watanabe and the silica instantly claimed.

Regarding claims 39, the applicant has not defined what "excess" means. Watanabe teaches that the binder is exposed at the surface (see at least col. 2, lines 25-32), and therefore is said to be in excess.

Regarding claims 40 and 41, Watanabe teaches adding additives to the coating compositions including accelerators, surfactants, thickeners and water (col. 10, lines 50-65).

In regards to the composition set forth in claims 42 and 48, the solvent, preservative and water are negligible since they are less than certain amounts and may be zero. None of the other materials instantly claimed are given specific materials, and rather are just referred to as generic terms from the art. For purposes of rejecting the claim, the Examiner breaks down the instantly claimed composition as follows:

The two fillers are linked together, giving a total possible amount of 7-60%. In the embodiment shown in Figure 4, Watanabe teaches that the filler is present in a preferable amount of 5-55% (col. 14, lines 50-55).

The Photocatalytic agent and the pigment are linked together, since, in the art it is known that  $\text{TiO}_2$  is a pigment, giving a total of 12-35% instantly claimed. Watanabe teaches that the photocatalytic agent,  $\text{TiO}_2$ , is present in an amount of 1-80% and preferably 20-50% (col. 14, lines 50-55).

The hydrophibization agent is linked with the hydrophobic binding agent, giving a total amount of 12-38% hydrophobic binder. In view of the preferred embodiments of the above two components this leaves a hydrophobic binder in amounts of 0-75%. Watanabe further teaches that the amount of hydrophobic binder may be controlled as desired (col. 15, lines 1-10). It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the amount of binder for the intended application, since it has been held that discovering an optimum value of a result

effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The remainder of the instantly claimed composition is a thickener of 0.1-1%, which the Examiner contends, for a routineer in the art, would have been an obvious addition, in the instantly claimed amounts, to the composition of Watanabe in order to obtain a desired consistency. The Examiner contends that a thickener in the instantly claimed amounts does not provide a patentable distinction over the layer taught by Watanabe.

Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,337,129) as applied above to claims 15-20, 30-42 and 48, in view of Chopin et al. (US 6,037,289).

Watanabe teaches a coating composition comprising photocatalytic particles of TiO<sub>2</sub>. Watanabe is silent to adding an additive to the TiO<sub>2</sub> particles.

Chopin et al. teach a coating comprising photocatalytic particles of Titania. Chopin goes on to teach that in order to amplify the photocatalytic effect one can add catalysts and additives to the TiO<sub>2</sub> particles (col. 4, lines 29-52). Chopin teaches coating titanium dioxide particles with oxides of Fe, Cu, Ru, Ce, Mo, Bi, Ta, Nb, Co, Ni, W, Sn, Zr, Ca, and Zn, in amounts of 0.01-20% compared to the titanium dioxide particles.

It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to dope the titanium dioxide particles of Watanabe with

the metal oxides in their respective amounts as taught by Chopin in order to increase the photocatalytic effect of the titanium dioxide particles. These obvious compositional ranges taught by Chopin overlap those compositional ranges set forth in instantly claims 21-29.

### ***Response to Arguments***

#### **Takahashi**

Applicant argues on pages 9 and 10 of the remarks, that Takahashi makes reference to the total solid matter, when talking about percents of the compositions of the coating. Applicant points to the teachings of [0053] and [0044] of Takahashi, which show a photocatalytic oxide of up to 5%, and water in the coating up to 500 parts by weight of water per 100 parts by weight of solid matter. Applicant argues that this results in a less than 2weight percent of photocatalytic agent in respect to the total coating material. The applicant further argues that example 1, (which does not contain a silicone or silicate binder) further supports their position.

The Examiner agrees that these specific embodiments teach photocatalytic oxides outside the instantly claimed range. However, "applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others." In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). As described in the rejection above, Takahashi teaches examples that fall within the instantly claimed ranges. Furthermore, Takahashi teaches broad ranges that completely encompass the instantly claimed ranges, and therefore the coating composition is either taught or suggested by Takahashi.

Applicant argues that Takahashi does not teach the automatic regeneration of microstructured surfaces by controlled decomposition of the binding agent. The applicant argues that in contrast, Takahashi teaches that the decomposition of the organic resin is to be avoided, and that Takahashi does not teach which one of the binding agents in [0083] is to be used.

The examiner disagrees. First, the applicant's arguments are not commensurate with the scope of the claims. The claims do not set forth automatic regeneration of microstructured surfaces by controlled decomposition of the binding agent. Furthermore, Takahashi teaches specific embodiments that comprise the instantly claimed binder, filler, and photocatalytic oxide, in the amounts instantly claimed. Therefore at least partial decomposition (instant claim 17) is expected as well as the instantly claimed photocatalytic properties, and chalking levels (see in re best case law applied above). The applicant has not provided evidence showing that these material properties are not present in the final coating of Takahashi.

#### Watanabe

Applicant argues that Watanabe does not disclose which binding agents listed in col. 12, is to be used. The examiner disagrees. Watanabe exemplifies, using silica sol, titania sol, and silicone resins (see at least the examples). Therefore there is a teaching and suggestion to use silicone resins as the binding agent of Watanabe's coating.

Applicant argues that the preferred amount of Watanabe's photocatalytic oxide is 20-50%, which falls outside the applicants instantly claimed range. However, "applicant

must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others." In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). Watanabe teaches that the photocatalytic oxides are present in amounts of 1 to 80% (col. 15, lines 43-53). It was and still is the examiners position that choosing a suitable amount of photocatalytic oxide is well within the skill of a routineer in the art dependent upon the amount of photocatalytic activity desired.

Applicant further argues that the present invention is based on irreversible decomposition of the binding agent, and that Watanabe teaches reversible process, which appears to induce a hydrophilicity not a hydrophobicity (col. 4, lines 14-15). First these arguments are not commensurate with the scope of the claims. The applicant is not claiming a hydrophobic surface. Furthermore, Watanabe teaches that the surface is both hydrophilic and hydrophobic (col. 4, lines 25-35), and therefore maintains self cleaning surfaces. It was and still is the examiner's position that Watanabe teaches similar compositions to instantly claimed, and furthermore suggests the instantly claimed compositional ranges and therefore the instantly claimed film properties are inherent to the coating composition of Watanabe.

Furthermore, the applicant is claiming a final coating composition, therefore little to no patentable weight is given to the intermediate coating unless it results in a structural difference in the final coating. Therefore since Watanabe teaches similar coating compositions and similar compositional ranges, it is the examiner position that



the final coating will have the same structure and therefore behave in the same manner as instantly claimed.

Murasawa

Upon further consideration the rejection over Murasawa has been removed, in favor of Takahashi and Watanabe as described above. Murasawa suggests inorganic oxides of silica being present in the coating, however never teaches a specific coating comprising, a filler, photocatalytic oxide and silicon or silicate binder.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Furuya teach similar compositions to instantly claimed, and is considered cumulative to Takahashi. See specifically example 7 of Table 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 8:00 am - 6:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Timothy M. Speer/  
Primary Examiner, Art Unit 1784